- if necessary, outputting of information which can enable an operator to undertake at least one of correction and calibration measures on either the first body or the second body so that mutual alignment of these bodies is improved.

Please add the following new claim:

- - 15. Device for measuring and assessing the mutual alignment of bodies according to claim 3, wherein the means for transporting and holding the housing is a handle attached to the housing, and wherein said ergonomically attached individual key is within reach of a hand holding said handle. - -

REMARKS

By the above actions, the specification and claims 1-5 and 12 have been amended, and a new claim 15 has been added. Additionally, accompanying this response are a separate Submission of Substitute Drawing and a second Information Disclosure Statement. In view of these actions and the following remarks, reconsideration of this application is requested.

With regard to the Examiner's objection to the drawings, the new Fig. 1 presented the new drawing filed with the accompanying Submission of Substitute Drawing deletes the superfluous reference number 12. Therefore, this objection should now be withdrawn.

Likewise, the redundant "and measuring" has been deleted from claim 2 as required. Thus, the objection to claim 2 should now be withdrawn.

Claims 3-6 & 11 were rejected on the basis of the Nower patent. However, this rejection is inappropriate, especially in view of the amendments made above.

In particular, the present invention is based on the primary prerequisite that device contains at least one optical gyro, such as a laser gyro. The Examiner states that the device according to the Nower invention discloses two laser gyros (12, 14). This is an erroneous interpretation of what is described in his specification to be alignment brackets, which are possibly of the mechanical type. It is true, that referenced brackets 12, 14 are preferred to work with laser light beams, to be detected outside of the brackets (with caution, according to laser classes used). However, these brackets are not at all laser optical gyros. Laser gyroscopes practically never emit laser radiation into free space, due to the circular beam path principle used and shielded evaluation stage. The person skilled in the art may well

presume from Figs. 1 and 2-6 that the alignment brackets may contain some form of inclinometer; however, an inclinometer functions vastly differently from a laser or other optical gyroscope, which has an inherent precision of about 3 to 4 orders of magnitude better as compared to a common inclinometer. In this regard, the Examiner's attention is drawn to patent literature describing laser or other optical gyroscopic equipment, e.g., the Rodloff et al. ('551) reference cited in the Examiner's Action.

In addition to lacking an optical gyroscope, which is a prerequisite of the present invention, Nower et al. requires his probes to be attached to the equipment being aligned (see Fig. 1). Thus, his apparatus clearly lacks a housing for an optical gyroscope that is provided "with means for manually transporting the housing and for holding the housing in place on a body whose state of alignment is to be determined," such as the handles 16 that are shown in Figures 1, 2 & 4 of the present application. Also, it should be mentioned that the Nower reference ('094) does not refer to ergonomic finger or thumb manual triggering of any kind (i.e., designed and arranged so that people and things interact most efficiently and safely; see, Merriam-Webster Online Collegiate Dictionary at http://www.m-w.com), or to the function triggered thereby that is recited in claim 3. Instead, Nower only mentions manual selection processes that are not related to real time considerations, and his push buttons are not on the housing of his probe. Moreover, new claim 15 indicates that the ergonomically attached individual key for actuation by the thumb or forefinger is within reach of a handle attached to the housing, no such handle or key/button being provided.

Similarly, the instruments provided or referred to in the Nower patents ('094; '282) are of a completely different structure compared with that of to claims 4 to 6 of present application, lacking an optical gyroscope and manually positioned and held housing. It is also noted that an optical gyroscope is capable of measuring directions or attitudes in space, directly and absolutely, but it is not capable of determining translational offsets or distances, as is the purpose of the instrumentation of the Nower patents. It is well known that from devices as used by Nower measurements of offsets or distance data, relative directions in space may be calculated.

With regard to claim 11 of present application, it should be noted that the bodies or devices to be tested are typically not arranged in an inline manner, but arranged in parallel, relative to each other. Thus, the instrumentation used with present invention is a completely novel one, exhibiting an utmost level of precision. However, it is not seen how examiner

comes to the conclusion that cols. 3 & 4, lines 49 to 4-12 of the Nower '094 reference disclose data sampling at a time sequential manner with a measurement frequency at which current mechanical acceleration values with comparatively low intensity are represented or assume a minimum value.

Therefore, for the above reasons, the Examiner's § 102 rejection based on the Nower '094 reference should be withdrawn and such action is now requested.

With regard to the rejection of claims 2 & 13 under 35 U.S.C. § 102 as being anticipated by the Lysen et al. ('903), the following reasons are presented for its withdrawal.

Firstly, with regard to claim 2, as set out above, the invention relates to the use of an optical gyroscope in a housing that is manually transported and held against a body being aligned. The rotatable sensors and the rotatable lasers taught by Lysen et al. are not optical gyroscopes, e.g., laser gyroscopes, as presumed by Examiner, being merely optical position detectors that happen to use lasers. Furthermore, there is no suggestion as to the use of a housing that has "means for manually transporting the housing and for holding the housing in place on a body whose state of alignment is to be determined" as set forth in claim 2.

As for claim 13, it is completely unclear how the instruments of the Lysen et al. '903 patent, based on electrooptical sensors, have any connection to the presumed alignment based on determining solid borne ***sound*** quantities. Claim 13 relates to subject matter shown and disclosed only in the present application, the Examiner's attention being directed to, for example, Fig. 3 and page 8 of the present application. Thus, claim 13 remains in its original form, and should the Examiner decide to maintain the existing rejection of claim 13, he is respectfully requested to where in the disclosure of the Lysen et al. '903 patent there is any mention of the determining solid borne ***sound*** quantities as set forth in claim 13, such certainly not being present in the portion of the Lysen et al. '903 specification cited by the Examiner in his rejection.

Accordingly, withdrawal of the rejection under § 102 based on the Lysen et al. '903 patent is in order and is requested.

Claim 1 has been rejected 35 U.S.C. § 102 as being anticipated by the Gerard '330 patent. However, like the other references commented upon so far, the Gerard reference does not relate to the use of any type of optical (laser) gyroscope whatsoever. The entire document does not contain a single incidence of any term starting with "gyr...." The fact that disclosure relates to a rotating laser beam does not at all imply that a "laser gyroscope" or any

type of optical gyroscope is used. Furthermore, this patent merely relates to a "method and apparatus for calibration of the self-leveling mechanism of the laser plane generator" as "used in the construction industry." Thus, this patent simply has no relevance to the subject matter of this invention and has no use for a gyroscope of any type. As such withdrawal of this rejection is in order and is requested.

As for the rejection of claims 7 & 10 under 35 USC § 103 based on the Nower patent, all of the points set forth above relative to the deficiencies of this reference relative to the independent claim from which claims 7 & 10 depend apply to this rejection as well. Furthermore, it is pointed out that, lacking a handle or a reason for one on the measuring probe, it is not understood how it is obvious to both add one, and then incorporated an antenna into it as is required by claim 7. Also, with regard to Examiner's generalization that any antenna could be used as a handle, it is pointed out that printed circuit antennas exist and are not useful for handles, moving radar antennas cannot be used as handles, nor can thin wire handles.

In regard to claim 10, it is not seen how the Examiner able to conclude that an averaged value acquisition is disclosed by Nower '094 reference. The only reference to average values relate to the fact that the averaged value of angular spacing of measurement instances can be used as a quality criterion. There is absolutely no hint on avoiding certain sampling frequencies in the time domain, or to utilize randomized sampling frequency in the time domain, in order to avoid the influence of mechanical vibrations present at the measuring sites. The Examiner's reliance on the cited case is thus misplaced since the general conditions are not disclosed by Nower '094, so that finding an optimum range for operations that are not performed simply cannot be presumed to be obvious.

Thus, the rejection of claims 7 & 10 is totally without proper basis and should be withdrawn.

Claim 12 has been rejected under § 103 over a proposed combination of the Nower '094 patent when view in combination with the patent to Gerard et. al. The Examiner's interpretation of the Nower, as noted above, is incorrect and merely adding a speech recognition function to such a device does not change the fact that it is still neither intended to, nor capable of performing or suggesting the claimed method which requires, among other things, "manually holding a measurement probe having an optical gyro enclosed within a housing that has means for manually transporting the housing and for holding the housing in

place against a first body which has a reference surface or edge" and then "manually holding the measurement probe against a second body which has a measurement surface or a measurement edge, as recited in amended claim 12. Rather, Nower '094 teaches to rigidly fasten, not just to contact, a first measuring probe to a first shaft. It is further taught to also rigidly fasten, not just to contact, a second measuring probe, to a second shaft (not the same measuring probe that contacts the first body).

Again, with respect to Gerard, this patent does not disclose anything like an instrument based on an optical gyroscope or even a device as disclosed by Nower, disclosing instead a laser plane generator. Furthermore, while it is admitted that Gerard mentions a voice input system, no voice output system is disclosed. Altogether, it is not seen how the combination of the Nower and Gerard references render present invention obvious. As such, withdrawal of this rejection is in order and is now requested.

Treating next the rejection of claim 8 based on Nower '094 in view of Lysen et al., here again, the above commented upon shortcomings of these references make it impossible for any combination of them to yield the subject matter of claim 5, let alone claim 8 which depends therefrom. Thus, withdrawal of the § 103 rejection based on these references is in order and is requested.

Claim 9 stands rejected based on a proposed combination of the Nower patent in view of Rodloff et al. patent. Once more, reference is made to the above mentioned deficiencies of the disclosure of the Nower patent relative to the claimed invention which make it clear that his disclosure lacks much more than the recording of measurement values in stochastic sequence. The examiner is correct that Rodloff et al. disclose a high resolution gyro system, and relates to controlling a switching means at random points of time. However, absent further disclosure on the meaning or function of such random activation, i.e., reading in levels of counting means, this only indicates that there may be a liberation from more stringent requirements of reading in said level, as were possibly imposed previously. But, it is not seen how Examiner can come to the conclusion that Rodloff et al. teach to irregularly distribute measured value acquisitions in order to prevent value drift error - the means mentioned for this purposes by Rodloff et al. being different, as can be seen from the incidences in which the term "drift" is used in Rodloff et al. reference. Moreover, Rodloff et al. provide no disclosure with regard to enclosure of the gyro in a housing that is provided with "means for manually transporting the housing and for holding the housing in place on a body whose state

of alignment is to be determined" as set forth in amended claim 5. Therefore, this rejection is not sustainable and should be withdrawn, such action being now requested.

Claim 14 has been rejected under § 103 based on a proposed combination of the Lysen et al. patent and the Rodloff et al. patent, both of which have already commented on above. Firstly, it is pointed out that this claim incorporates the subject matter of claim 13 such that, in addition to the lack of a disclosure of recording (sampling) of measurement values in a stochastic sequence, Lysen et al. is deficient for the reasons noted relative to claim 13, e.g., the absence of a teaching of analyzing solid-borne ***sound*** quantities. Also, again, Rodloff et al. only mentions a non-periodic reading of counter devices, within the broad context of an instrument that incorporates, among other subsystems, a ring laser gyroscope. Rodloff et al. do not teach that such reading is done in order to improve accuracy, nor do they teach analyzing solid-borne ***sound*** quantities. Thus, no combination of these references can suggest the subject matter of claim 14, so that withdrawal of this rejection is in order.

The prior art which has been cited but not applied by the Examiner has been taken into consideration during formulation of this response. However, since this art is not any more relevant than that relied upon by the Examiner and was not considered by him to be of sufficient relevance to applied against the original claims, no detailed discussion thereof is believed warranted at this time.

The Examiner's attention is also directed to the accompanying Information Disclosure Statement which contains the U.S. counterpart to the PCT application originally referenced in the present application, this reference having been updated above to include this U.S. counterpart patent. However, this patent, even when viewed in combination with the art cited by the Examiner does not suggest the present invention since it contains no suggestion of a housing that is provided with "means for manually transporting the housing and for holding the housing in place on a body whose state of alignment is to be determined," nor does it teach analyzing solid-borne sound quantities. Thus, while this patent is highly relevant and it is requested to be made officially of record, the present claims should be found to be patentable thereover.

While the present application is now believed to be in condition for allowance, should the Examiner find some issue to remain unresolved, or should any new issues arise, which could be eliminated through discussions with applicant's representative, then the Examiner is

invited to contact the undersigned by telephone in order that the further prosecution of this application can thereby be expedited.

Lastly, it is noted that a separate Extension of Time Petition accompanies this response along with a check in payment of the requisite extension of time fee. However, should that petition become separated from this Amendment, then this Amendment should be construed as containing such a petition. Likewise, any overage or shortage in the required payment should be applied to Deposit Account No. 19-2380 (741124-63).

Respectfully submitted,

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Mark-Up Showing Amendments Made

In the Claims:

1. (Amended) Device for measuring and assessing the mutual alignment of bodies, with at least one [laser] optical gyro enclosed within a housing, wherein the housing has means manually transporting the housing and for holding the housing in place on a body whose state of alignment is to be determined, and wherein the device has means for receiving and processing voice commands of an operator and switching the device into an altered machine status based on the voice commands.

2. (Amended) Device for measuring [and measuring] and assessing the mutual alignment of bodies, with at least one [laser] optical gyro enclosed within a housing, wherein the housing has means for manually transporting the housing and for holding the housing in place on a body whose state of alignment is to be determined, and wherein the device has speech output means for acoustically providing determined measurement results.

3. (Amended) Device for measuring and assessing the mutual alignment of bodies, with at least one [laser] optical gyro enclosed within a housing, wherein the housing has means for manually transporting the housing and for holding the housing in place on a body whose state of alignment is to be determined, and wherein the device has an ergonomically attached individual key for actuation by the thumb or forefinger which, when actuated by an operator, causes storage of an individual measured value out of a time-sequential succession of measured values.

4. (Amended) Device for measuring and assessing the mutual alignment of bodies, with at least one [laser] optical gyro enclosed within a housing, wherein the housing has means for manually transporting the housing and for holding the housing in place on a body whose state of alignment is to be determined, and wherein the device has a high-resolution display device for reproduction of alphanumeric or graphic information, using which an operator can recognize whether and in what manner correction measures can be carried out on the articles to be measured.

5. (Amended) Device for measuring and assessing the mutual alignment of bodies, with at least one [laser] optical gyro enclosed within a housing, wherein the housing has means for manually transporting the housing and for holding the housing in place on a body whose state of alignment is to be determined, and wherein the device is provided with transmission means for wirelessly receiving or exchanging at least one of data, commands and other information with an externally arranged control or a higher-level supervisory computer,

12. (Amended) Process for measuring and assessing the mutual alignment of bodies, comprising the following steps:

- manually holding [contacting] a measurement probe having an optical gyro enclosed within a housing that has means for manually transporting the housing and for holding the housing in place[, with] against a first body which has a reference surface or edge;

- inputting a command by an operator to the measurement probe by speech input;

- waiting, if necessary, for one of an optical, acoustic and speech-linked acknowledgement signal;

- manually holding [contacting] the measurement probe [with] against a second body which has a measurement surface or a measurement edge,

- inputting of another command to the measurement probe by speech input,

- waiting, if necessary, for one of an optical, acoustic, and speech-linked acknowledgement signal;

- inputting, if necessary, of dimension data which describe an arrangement or distances of the bodies relative to one another, by means of at least one of a keyboard, a speech input means and a display which facilitates ordered or structured input of dimension data;

- computing geometrical data which describe the mutual orientation of the bodies in a differential manner;

- outputting of information which has differences of orientation between the first and the second body, on one of an optical, acoustic, and speech-linked basis, to an operator; and

- if necessary, outputting of information which can enable an operator to undertake at least one of correction and calibration measures on either the first body or the second body so that mutual alignment of these bodies is improved.